

THE REGULATION OF LARGE RETAIL FIRMS IN TURKEY: A GAME THEORY BASED ANALYTICAL MODEL

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ABSTRACT

In 2006, a lobbying group The Confederation of Turkish Tradesmen and Craftsmen (TESK) prepared a regulation proposal and submitted to the Ministry of Trade and Industry in Turkey. The regulation proposal aimed at restricting some of the operational flexibility of large-scale retail firms. The objective of this study is to construct a formal game-theory-based model to investigate possible scenarios regarding the recent regulation proposal. This study, by integrating peculiar aspects of the Turkish business and political systems as well as medium voter concept into the Becker (1983) regulation model, shows that the regulation of large-scale retail firms is a very complex issue.

Keywords: Retail Sector, Regulation, Rent Seeking, Game Theory

TÜRKİYE'DE BÜYÜK PERAKENDE FİRMALARININ REGÜLASYONU: OYUN TEORİSİ EKSENLİ BİR ANALİTİK MODEL

ÖZET

Bu çalışmanın amacı Türkiye Esnaf ve Sanatkarlar Konfederasyonu (TESK) tarafından 2006 yılında Sanayi ve Ticaret Bakanlığına sunulan ve Türkiye'de büyük perakende firmalarının bazı alanlarda sınırlandırılmasına ilişkin regülasyon önerisi ile ilgili oyun teorisi merkezli bir model kurmaktır. Becker'in 1983 yılında ortaya koyduğu modelden bazı yönlerde ayrılarak kurgulanan bu çalışma regülasyon oyununa Türkiye'deki iş ve siyaset sisteminin kendine özgü normlarını ve ortanca seçmen kuramını entegre etmiştir. Bu ilaveler çerçevesinde Türkiye için kurgulanan bu model, büyük perakende işletmelerinin regülasyonunun oldukça karmaşık bir durum sergilediğini göstermiştir.

Anahtar Kelimeler: Perakende Sektörü, Regülasyon, Rant Kollama, Oyun Teorisi

1. INTRODUCTION

The retail sector is a part of an economic system that includes individuals and companies engaged in selling of *finished* products to end users in general public. The sector has displayed significant transformation over the past fifty years. Retail sector is one of the largest sectors within the economy for many countries. In the US, for example, the sector is considered as the second largest industry in terms of the number of employees (Vargas, 2004). In 1990s, approximately %18 of total employment in the US holds a retail job (Bhattacharya et al., 2007). With increasing globalization, the retail industry has been facing more and more competition and this has led the firms struggling harder and harder to succeed through better performance (Koh et al., 2006). In many countries, prior to entrance of large corporations and hypermarkets into the sector, the traditional retailers had enjoyed relatively reasonable profit. With the arrival of large retailers, supermarket-chains and super centers which offer everything from food to clothes with relatively cheaper prices than the traditional small stores, the sales and thus future prospects of many small retailers has become threatened. This trend may partly due to change in consumer shopping habits, time constraints of the consumers on shopping activities (due to change in the role of women in family, increase in single headed households etc), and inefficiencies in cost structure of the small retailers. Therefore, the small retailers are facing competition from the influx of large retailers with significant cost-efficiency.

In Turkey, economic and social transformation gained momentum particularly after the 1980s. Turkish retail sector has displayed significant transformation since 1980s. Prior to the late 1980s, the characteristics of an average retail firm (SRF, henceforth) were: small-scale, capital-weak, independent, and family owned. These SRFs including convenient stores (bakkals), grocery stores (manav), butchers (kasap), small supermarkets and bazaars were the only choices for Turkish consumers (Kaynak, 1982, 1986; Tokatli and Boyaci, 1998). These highly fragmented structure dominated prior to this period in the sector did not show any horizontal or vertical integration (Kumcu and Kumcu, 1987).

In Turkey, during the last quarter century, the liberal economic reforms accompanied by global economic trend in the world have lead to major shift in the operational and organizational structure of the retail sector. According to a research by AMPD&PwC in 2007, the total retail sector became the fourth biggest after energy, education and health sectors. In terms of employment capacity, the sector employs about 2.5 million people. According to the same study, the sector constituted approximately 137 billions of US dollars of total revenues and the number is expected to reach around 200 billion of US dollars by the year 2010.

Today, although the traditional (or small-sized) retail firms comprise significant portion of the retail industry, the stance does not look bright for many of these small-retail firms in the future. Large retail firms offer cheaper prices as well as non-price benefits for the consumers so that it has been more and more difficult for the small stores to compete against them. In Turkey, the number of organized retail establishments or large retail firms (LRF) has increased significantly over the last

fifteen years. On the other hand, the number of traditional (or small) retail units during the same period has decreased approximately by more than 20%.

A recent regulation proposal submitted to the Ministry of Trade and Industry by a pressure group [TESK] on February 16, 2006 is aimed at regulating large retail firms (LRF) pertaining restriction on store hours, days and the location selection.^{1,2} According to TESK, some of the applications of these large establishments involve unfair competition hurting it's members. By introducing some measures through regulation of these large establishments, TESK believes, might eliminate some of their unfair competitive applications and thus help survival of small retail firms and also alleviate some of the urban problems generated by these large establishments.

The objective of this paper is to construct a formal mathematical model capturing the behavior of the actors related to this regulation proposal. By borrowing ideas from Becker's (1983) Chicago-type regulation model and from public-choice literature, this study investigates regulation-game between large-retail-firms (LRF), small-retail-firms (SRF) and the legislators (or politicians). In the next part, the study will outline developments in Turkish retail industry. In the third part, the study discusses regulation theories. In that part of the paper, the main emphasize will be given to Becker's model and Virginia political economic thoughts over regulation. The fourth part of the paper will show the construction of the model. Finally the study will show the solution and then interpret the results.

2. LITERATURE REVIEW

2.1. Retailing and Recent Trend in Turkish Retail Sector

Generally, retailing is defined as trade or selling activities of all kind of goods and merchandises to *end user*. Predominantly started in the developed countries around for more than five decades and then spread to developing countries, the retailing has shown considerable transformation. The main driving forces in this transformation may include; wider distribution channels, the emergence of effective advertising, development in electronic payment and fund transfer systems, development in consumer credit systems and innovative customer service offerings such as formal return policies.

In entering a large-scale retailing, the firms ensure viability of the demand and the supply. For the former, as urban populations started to provide retailers with a large, steady and consistent demand, large scale retailing becomes a viable option for the large corporations (Tokatli and Boyaci, 1996). For the latter, the progresses in intercity transportation, the developments in the industrial production, together with import liberalizations made it possible to have a large, consistent and steady supply of goods (Tokatli and Boyaci, 1999). The developments in these areas have

¹ TESK: The Confederation of Turkish Tradesmen and Craftsmen. The members are small and medium size firms particularly in the retail sector. In order to see the objectives of this pressure group: <http://www.tesk.org.tr/eng/eng.html>

² See for example: <http://www.radikal.com.tr/haber.php?haberno=236414>

created environment calls for new policies such as increase in average store size, good-mix, pricing strategy and so on.

The most distinctive policy shift regarding the transformation has been the enlargement of the average store's floor size. The Western style retailing model involves vertical integration within the firms i.e. purchasing, manufacturing, advertising and shipping. In particular, for example, these firms have some products (such as cosmetics, processed food, toys, electronic devices etc) manufactured with their own brand name so that they gain significant costs advantage through eliminating the middleman. This integration yields significant cost savings and therefore this formulation allows firms to sell the same goods relatively much cheaper than traditional players which in turn drift traditional firms into cruel economic distress.

The cost efficiency generated from enlargement of "store size" is also accompanied by the consumers' acceptance.³ Scholars on marketing field, in their applied works, showed that (*ceteris-paribus*), the consumers are generally in favor of shopping from larger stores⁴. In these studies, the consumers assert their apparent preference LRF over SRF and their preference is based on two types of relative advantages: 1) Price advantages; 2) non-price advantages.

The price advantage of LRF over SRF is one of the most important reasons regarding explanation of this intuition. A report by McKinsey&Company (2003) displays some of the important characteristics of large and traditional RFs in Turkey. According to this study, the prices of similar goods are cheaper in large RFs than in small RFs. In particular, a basket of goods purchased in hypermarkets is set to 100, and the same basket is purchased around 105-125 from the supermarkets and around 118-165 from the traditional stores (McKinsey&Company, 2003:6).

Economies of scale can explain the price advantage of LRF. The LRFs' better efficiency management will cut personnel and inventory costs through adjustment flexibility of their structure so that the variance is significantly lower than that of small firms. The inventory management in large retail firms (particularly for hyper and large supermarkets) is carried through centralized system by using operational management models based on some mathematical calculations derived from rigorous observations (See for example Levy et al., 1989; Moinzadeh and Ingene, 1993). The workers employed in LRFs are utilized more efficient than those employed in SRFs. More specifically, a single LRF drawing an equal number of customers as many SRFs require fewer overall workers to achieve the same service levels (Metter and Ketzenberger, 1999: 393).

In addition to price advantage, the LRF possesses some other features or non-price advantages. The LRF offer larger variety of products than SRF. In the US, for

³ Although the firm size as a concept may seem to describe a total concrete entirety, in practical sense it is difficult to describe the size accurately (Karalar, 2004:130). The study (following TESK) uses floor size as a proxy to differentiate small (or traditional) retail firm from the large one. According to TESK, the small retail firm has a floor size of less than 400 m², and the large retail firms which have larger floor size than the specified amount.

⁴ In order to see detail explanation, see for example, Seth and Goeffrey (2000), Akdoğan and Güllü (2000) and Altunışık and Mert (2001).

example, the average number of items sold in average supermarkets was around 6000 in 1960s while that number reached to 18000 in 1990s (Metters et al., 2000). Intuitively, consumers' preferences over larger stores are basically due to the enjoyment of one-step shopping. Larger stores can offer greater variety of products, thereby reducing the need for the number of shopping excursions (Metter and Ketzenberger, 1999:393). For a given amount of hours, larger stores provide much more items with diverse price range so that consumers can have chance to choose among these variety of items without leaving the stores (Messinger and Narasimhan, 1997). Finally, as Bellenger and Korgaonkar (1980) made the distinction between functional-economic shopping and recreational shopping, the former being more purposive and the latter being more entertaining. In McKinsey&Company (2003) report, 47.6% of the costumers choose LRFs because of the price advantage, and 42.5% of the costumers declare due to other features of LRFs. The study also shows that Turkish consumers enjoy recreational and social elements of shopping provided by these stores. In sum, LRFs offer so many price and non-price successful policies (e.g. modern outlook, calming environment, available parking, credit card, easy transportation, suitable operational hours etc.) so that the SRFs loose grounds in competing against them.

In societal perspective, on the one hand there are numerous benefits generated by larger stores and on the other these stores can harm small retail firms this in turn can cause adverse social and political consequences. The large retail stores such as Wall-Mart in the US found to cause some societal problem. Goetz and Swaminathan (2004) study shows that the entrance of Wall-Mart in to a counties or neighborhoods would drive out local entrepreneurs and thus increase the poverty. Basker (2004) found that the large retailers like Wall-Mart reduced the number of small retail establishments and had negative impact on wholesale employment in the US (Sieling et al., 2001).⁵

Although the traditional retail comprises significant portion of the retail industry in Turkey, the stance does not look bright for many small-retail firms in the future if the considerable growth pattern pertaining to large retail firms persists. The number of organized retail establishments has increased more than fourfold from 421 units to 1872 from 1996 to 2005 (See Table-1). At the same period, on the other hand, the number of traditional and small retail units has decreased approximately from 176,000 to 139,000 indicating a 21% reduction in number of units (See Table-1).

The share of SRF in total revenues of retailing sector has also shown a squeezing trend. Table-2 outlines this fact. Although the total sales of retail sector have had an upward trend, the share of traditional retail firms in total revenue display a negative trend while that of organized retail firms display the opposite. For instance, the traditional sector's market share has declined by around 5% and organized sector's market share increased by 5% during 2000-2005 period (See Table-2).

⁵ http://cpim.org/upa/10272005_fdi_retail%20trade.pdf.

A recent regulation proposal submitted to the Ministry of Trade and Industry by a pressure group [TESK] on February 16, 2006 is aimed at regulating large retail firms pertaining restriction on store hours, days and the location selection.^{6,7} Some of the important part of this regulation proposal can be summarized as:

- i. The location of new shopping centers and the new hypermarkets will be outside of the city zone.
- ii. The establishment of new shopping centers and hypermarkets will need very strict permission rules.
- iii. The LRFs will be closed after 8. PM on regular days and will be closed on Sundays and other official holidays.

According to TESK, some of the applications of these large establishments involve unfair competition hurting its members. By introducing some measures through regulation of these large establishments, TESK believes, might eliminate some of their unfair competitive applications and thus help survival of small retail firms and also alleviate some of the urban problems generated by these large establishments. In this study, instead of dwelling into the details of the regulation, we will assume that the regulation is aimed at restricting some of the features of LRFs that are enjoyed by the consumers. In other words, we assume the regulation restricts some of the price and non-price advantages of the LRFs.

Table 1: Number of Firms in Retail Sector by Size in Turkey

Size & Firm Type ⁸		1996	2000	2001	2002	2003	2004	2005
Large Firms	1) Hypermarkets	41	129	149	151	143	152	160
	2) Large Supermarkets	91	306	357	368	367	396	454
	3) Supermarkets	289	726	835	909	968	1082	1258
	Total (1+2+3)	421	1161	1341	1428	1478	1630	1872
Small Firms	4) Grocery Stores	175	150	141	135	138	138	136
	5) Small Supermarkets	0,9	1,8	2,3	2,5	2,8	3,2	3,7
	Total (4+5)	176	151	144	138	141	141	139

Source: AMPD & PwC. (2007), Türk Perakende Sektörünün Değişimi ve Ekonomi Üzerindeki Ekileri. p. 29-32.

⁶ TESK: The Confederation of Turkish Tradesmen and Craftsmen. The members are small and medium size firms particularly in the retail sector. In order to see the objectives of this pressure group: <http://www.tesk.org.tr/eng/eng.html>

⁷ See for example: <http://www.radikal.com.tr/haber.php?haberno=236414>

⁸ The floor size (TFS) is : (1) Hypermarkets TFS >2500m² : (2) Large Supermarkets ;1000< TFS< 2500m² : (3) Supermarkets 400< TFS<1000m² : (4) Groceries and Bakkals: TFS<100m²: (5) Small Supermarkets: 100<TSF<400m²

Table 2: The Total Revenue Structure of Retail Industry in Turkey⁹

	2000	2001	2002	2003	2004	2005
I) Hypermarkets⁽¹⁾	2,8	2,9	2,9	3,0	3,1	3,2
II) Large Supermarkets⁽²⁾	19,3	19,8	20,8	21,8	23,0	24,2
III) Small Ret. Firms^{(B)(3)}	47,4	46,4	45,3	44,3	43,2	42,0
IV) Others⁽⁴⁾	30,5	30,9	31	30,9	30,7	32,5
Total (I+II)	22,1	22,7	23,7	24,8	26,1	27,4
Rev. in EURO⁽⁵⁾	43,485	32,055	38,797	40,650	48,825	51,652

Source: AMPD & PwC. (2007), Türk Perakende Sektörünün Değişimi ve Ekonomi Üzerindeki Etkileri, p. 29-33, and own calculation based on report by SekerYatırım (2006) over retail sector.

2.2. A Brief on Regulation Theories and the Recent Regulation Proposal

Under certain conditions, the price system is served as to be the best coordination mechanism in which (if the economic system obeys some of the assumptions) the final outcome would be consistent with the Pareto optimality or the first best optimum. Some of the assumptions in the process of Pareto optimal allocation are not consistent with the real life. Therefore there is rarely a first best solution, and the problem is to choose among second or third best coordinating mechanisms. The regulation theories are basically built during the search process over this allocation problem Wolf (1993).

Although the price-mechanism can allocate resources the best possible way in a theoretical sense, in most cases, due to market failures, the market economy might need other means [coordination mechanism] for solving resource allocation problem. The proponents of the government involvement [scholars supporting the public interest view of the regulation theories] point the market failures as the argument in defending the legitimacy of their ideas. According to *public interest view*, when there are market imperfections [i.e. imperfect competition, externality, public goods and asymmetric information], the price mechanism will not work properly, and government interventions should be warranted as the other means of coordination mechanism so that the system is transmitted into the second best optimum. Opposite to public interest view, some other perspectives (such as Chicago, Public Choice and Austrian) believe that inclusion of the government in coordination problem would cause some other problems that the proponents of public interest view do not incorporate in defending their claim. Therefore, these scholars are aimed at searching for non-governmental solution to these problems.

⁹ The revenue share of large retail firms as of total sector revenue. **B)** The revenue share of small retail firms as of total sector revenue. **1)** Hypermarkets: **2)** Large Supermarkets: **3)** Small Retailers: **4)** Others : **5)** Total sector revenues in million in EURO.

The Becker's model is one of the regulation theories developed by the economists in University of Chicago.¹⁰ According to Becker (1983) regulation is a game played among the involved parties or interest groups. Assume that we call these group; group1 and group 2. The piece focuses on competition between interest groups and the role of regulator. In that study, the role of regulator is suppressed by assuming that "Politicians, political parties, and voters transmit the pressure of active groups (Becker, 1983:372)". In Becker's work, what counts in the regulation game is basically the power of one actor in influencing the law makers relative to the other (Heid, 2001:80-81). The regulation is used to increase the welfare of the group which has an ability to exert greater influence than the other groups.

In this model, lobbying requires utilization of some resources. Thus each party is willing to utilize resources in the game. However, lobbying groups will always calculate costs and benefits in extra money they utilize in this lobbying game. Another important assumption (which may play significant role in outcome) of the model is that the aggregate resources employed in regulation game is fixed. The sum of the resources employed by group1 and group 2 is assumed to be less than aggregate transfer due to regulation. Turkish retail regulation proposal is not aimed at increasing the size of the sector. Thus the regulation is considered as a policy aimed at transferring part of the revenue from LRF to SRF. If total amount of transfer is fixed and say equal to ΔW , the resource employed by group 1 (say R_1) and group 2 (say R_2) must be equal or less than total transfer (i.e. $\Delta W > R_1 + R_2$).

In Becker's model, if group "i" exert more influence (and thus more resources) on regulation proposal relative to group "j", then the outcome would be close to group "i". In other words, the Becker (1983) model concludes that regulation policies that are welfare improving are more likely to be implemented than policies that are not (Heid, 2001: 82). The application of Becker's model to Turkish retailing implies: The outcome depends on amount of R and the result in either way would be welfare improving. However, the critical shortcoming of Becker's model is the assumption that the amount of resources employed by each group would be less than welfare transfer. In other words, this research argues that *ex-ante*, it is impossible to calculate these values. In other words, the questions raised against the Becker's model would be: what would happen if the sum of R_1 and R_2 is greater than ΔW (or; $\Delta W < R_1 + R_2$)? Secondly, in the Becker's model, the link between resource and influence is taken unsuitably mechanical way. The perception of politicians in viewing the influence depends on many things and we argue that the link is more complicated than outlined in the Becker's model.

The public choice school is positioned favoring more market oriented solution. In this search, public choice scholars always have warned us about government failures. The government failures argument can be rephrased by asking: "what are the costs and benefits of government regulation?" Moreover, the scholars argue that total resources utilizes in lobbying contest will be much more than transfer. According to the public choice scholars, total resources ($R_1 + R_2$) employed in this regulation game may be more than the expected transfer ΔW .

¹⁰ The theories by the School are Posner (1971), Peltzman (1976) and Becker (1983) and (1985).

The monopoly regulation, for example, is one of the most important and most suitable cases of market failures, and the regulation of the monopoly has been practiced for decades. The actual regulation practices of the monopoly, however, show that the intervention might generate more harm than good. In order to elucidate the big picture of regulation, one needs to understand the real intentions of regulations and the costs borne by the actions of losers and winners of the regulations. The last statement is beautifully described by Hertog (2000) which is the summary of Tullock (1967):

Firstly, some individuals and groups expend resources (e.g., time to organize interest groups, lobbyists, invest in political campaigns to exchange support for those who have the discretionary power to create or change regulations) in an effort to gain wealth in the form of artificial rents created by government actions (e.g., monopoly franchises, licenses, quotas, tariffs). Secondly, others expend resources in an effort to defend against such transfers. Thirdly, for the same rents, there may be more than one group or single individual who seeks to capture this rent. Finally, monopoly rights can cause x-inefficiencies: the monopolist will not produce at minimum cost of production (Hertog, 2000:243-245).

In addition to that as Posner (1974:336) states: “Some fifteen years of theoretical and empirical research conducted mainly by economists, have demonstrated that regulation is not positively correlated with the presence of external economies or diseconomies or with monopolistic market structure.”

In sum, first, in order to legitimize (at least for economical sense) the current conditions of the retail sector involve some market failures. If the proponents' based their case over non-competitive behavior, than the regulation proposal should include elements that forbid all the non-competitive practices without discriminating the size of the firms. Since the growth of the large RFs have caused to reduction of the number of small RFs, the regulation might target social elements. Although the debate over whether social conflicts due to market economy can be regarded as market failures or not yet to be concluded, the recent proposal should not leave both losers [probable consumer loss, workers currently working and may be laid off after the regulation, share-holders of those firms etc] and winners [owners and workers in the small RFs] of the proposal out of account.

3. MODEL

This research is aimed at building an analytical model focusing on welfare gain/loss of the regulation outlined above. The model's insight is based on two theoretical frames: 1) Gerry Becker's (1983) study on regulation and 2) political economic aspects of regulation brought by public-choice scholars. By inclusion some of the political aspects of the issue, this model shows that the decision over regulation might be more complicated than implied in Becker's study.

In our paper, we differ with Becker's piece in some points. Firstly, we do not restrict amount of resources to be utilized by each group. This model proposes that no group can accurately predict the amount of wealth to be transferred from one group to the other due to regulation. If no group knows what the amount of ΔW , then the amount of resources utilized by each group would be different than indicated by Becker's model. In this paper, we show that the amount of wealth transferred from one group to another may not known prior to regulation and thus amount of resources (R) exerted by each group would be uncertain. The degree of pressure exerted by one group is not an exogenous (as assumed by Becker's model) variable. That is, the degree of pressure or relative influence is an endogenous variable and depends on change in demand structure.

Second issue in here is related to perception of resource utilization. At any given time, we believe (as opposed to Becker's assumption) "*relative influence*" is perceived differently and the perception can depend on several factors that may or may not be linked with electoral concerns. For example, we believe if election is imminent, the relative influence exerted by one group is felt stronger if the number of electors in this group is more than the other. In particular, the political actors' calculation regarding "*influence*" might depend on different set of variables and the weight of those variables in calculation process may display significant shifts. Therefore, one needs to outline factors that can cause such shifts. In this paper, we will discuss about the importance of such factors by borrowing ideas from the public-choice literature. In this market, we assume that there are two major players, and they are: This study limits the scope of the model with fast moving consumer good market

- i. **Large Retail Firms (LRF):** These are large supermarkets and hyper markets. The major lobbying group acting on behalf of the large retail firms (LRF) in Turkey is Turkish Council of Shopping Centers and Retailers (*in Turkish; Alışveriş Merkezleri ve Perakendeciler Derneği-AVMD*).¹¹
- ii. **Small Retail Firms (SRF):** These are small traditional stores with floor size less than 400m² and major lobbying group in Turkey is TESK (Confederation of Turkish Tradesman and Craftsmen)¹².

Consider an average consumer optimizing his strictly concave utility function (equation 1) defined over C (composite good) and L (leisure). The composite good C simply contains all the final goods that are sold by retail firms. Both LRF and SRF are assumed to sell this identical composite good. Assume that M denotes the

¹¹ Some of the LRFs are have organic link with TUSIAD [Turkish Industrialists' and Businessmen's Association] and TOBB [The Union of Chambers and Commodity Exchanges] are two important pressure groups in Turkey. The former consists of members from the biggest and mainly Istanbul based companies while the latter's members are diversified. Therefore, in Turkey LRFs have other means of mechanisms that can have strong influence over politicians.

¹² Since the modeling the entire retail sector can cause some conflicting interests among sub-sectors, the research finds it more logical to concentrate only one single sub-sector. This study, therefore, limits the scope of the model with fast moving consumer good market.

composite good sold by LRF and B denotes the composite good sold by SRF. The perfect substitution implies that total composite good can be written as sum of M and B or $C = M + B$. LRF has some advantage over SRF such as cheaper prices, large variety of products, flexible operational hours/days, and some other properties (e.g. social aspects including food courts, movie theaters etc). These advantages can be classified as price and non-price advantages. We assume that price of B (or \bar{P}_b) is a bit higher than the price of M (or \bar{P}_m). In order to capture the price mark-up of SRF, we assume that the relation is in the form: $\bar{P}_b = \tau \cdot \bar{P}_m$ where $\tau > 1$.¹³

Although the relatively lower prices is the most important factors in choosing LRF, some studies show that consumers also pay attention to non-price advantages of LRF. As we explain this more rigorously below, for now assume that there exists a variable called *desirability* or *enjoyment* of shopping from LRF and this variable is represented by X.

An average consumer is assumed to devote his total hours (\bar{T}) among ; working (\bar{W}), leisure (L) and shopping activities (S). Moreover, assume that he spends his entire income Y over B and M¹⁴. Equation 2 and 3 shows his time and income constraints, respectively.

$$U = u(C, L) \quad (1)$$

$$\bar{T} = \bar{W} + L + S \quad (2)$$

$$\bar{Y} = \bar{P}_m M + \bar{P}_b B \quad (3)$$

We assume that S denotes shopping; and depends on volume of goods and services that are purchased from either LRF or SRF and X. We assume that $\partial S / \partial C > 0$ and $\partial S / \partial X \leq 0$.

$$S = s(C, X) \quad (4)$$

In shopping equation, X refers to non-price advantage (or *convenience/enjoyment /desirability*) of shopping from LRF. From consumers' perspective, the larger the X offered by LRF, the more enjoyable the shopping and probably the more leisure time he would be willing to spend at the LRF. Specifically, X might, for example, be parking availability, suitable operational hours, shuttle services, flexible product return policies, relaxing and pleasant environment and so on. Although there are several items which are related to convenience/enjoyment from LRF, in this study we assume that all these items are composed into a single variable: X. In other words, X denotes a composed variable including all non-price advantage (or attributes of *convenience/enjoyment /desirability*) of LRF.¹⁵ In practical sense, the regulation proposal is defined as a rule targeting restriction of X.

¹³ According to McKinsey& Company (2003) study, $\tau \approx (118 - 165)$.

¹⁴ Or part of the total income that is devoted to fast moving consumer goods market.

¹⁵ Note that, we will use enjoyment, attributes, convenience and X interchangeably.

Substituting these constraints into the objective function will yield equation 5:

$$U = \left(\left(\frac{\overleftarrow{C}}{\overline{Y} - \overline{P}_m M} \right), \left(\overleftarrow{L} \right) \right) \quad (5)$$

The first order condition in the optimization problem is :

$$\frac{\partial U}{\partial M} = \left[\left(\frac{\partial U}{\partial C} \right) (-\tau^{-1}) \right] - \frac{\partial U}{\partial L} \left(\frac{\partial S}{\partial M} \right) = 0 \equiv \Psi \quad (6)$$

The implicit function theorem allows us to write optimum M as functions of the parameters in the model:

$$M^* = b(\tau, p_m, p_b, \overline{Y}, \overline{T}, \overline{X}) \quad (7)$$

Since the regulation proposal is aimed at reducing X, the relation between M and X needs detail exploration. That is we need to investigate: $\partial M^* / \partial X$. By using the implicit function differentiation rule (equation 8), one can find the slope of M with respect to X:

$$\frac{\partial M^*}{\partial X} = - \frac{\frac{\partial \Psi}{\partial X}}{\frac{\partial \Psi}{\partial M}} = \quad (8)$$

$$= \frac{\overbrace{\left(\tau^{-1} \frac{\partial^2 U}{\partial C \partial L} \frac{\partial L}{\partial S} \frac{\partial S}{\partial X} \right)}^{A \Rightarrow (+)} + \overbrace{\left(\frac{\partial S}{\partial M} \frac{\partial^2 U}{\partial L^2} \frac{\partial L}{\partial S} \frac{\partial S}{\partial X} \right)}^{B \Rightarrow (-)} - \overbrace{\left(\frac{\partial U}{\partial L} \frac{\partial^2 S}{\partial M \partial X} \right)}^{C \Rightarrow (-)}}{\left[\underbrace{\left(\tau^{-2} \frac{\partial^2 U}{\partial C^2} \right)}_{D \Rightarrow (-)} + \underbrace{\left(\tau^{-1} \frac{\partial^2 U}{\partial C \partial L} \frac{\partial L}{\partial S} \frac{\partial S}{\partial M} \right)}_{E \Rightarrow (-)} - \underbrace{\left(\left(\frac{\partial S}{\partial M} \right)^2 \frac{\partial^2 U}{\partial L^2} \frac{\partial L}{\partial S} \right)}_{F \Rightarrow (+)} - \underbrace{\left(\frac{\partial S}{\partial M} \frac{\partial^2 U}{\partial L \partial C} \right)}_{G \Rightarrow (+)} \tau^{-1} - \underbrace{\left(\frac{\partial U}{\partial L} \frac{\partial^2 S}{\partial M^2} \right)}_{H \Rightarrow (-)} \right]}$$

4. INTERPRETATION AND THE CONCLUSION

Although the intuition suggests the reduction in X would reduce M (or the slope is positive), thorough investigation will be very informative about the behavior of the demand curve with respect to the reduction. The signs of the terms A, B and C

on the numerator would be (+), (-) and (-), respectively. Intuitively, the sign of the numerator should be positive. This intuition would be realistic if $A+C>B$.

Since the denominator basically demonstrates the second order condition of maximization problem (or $\partial^2 U / \partial M^2$), the inside of parenthesis (consisting of D, E, F, G and H) should be negative and overall denominator would be positive. To have a positive value (or large positive value) for the numerator, B should be as small as possible while that of A and C should be as large as possible. In order to have large value for $\partial M^* / \partial X$, the denominator should be consistent with these two conditions:

- i. $|D| + |E| + |F| + |G| - |H| \geq 0$: In absolute value, sum of D, E, F and G should be more than that of H. This is somewhat related to the assumptions of the model and is guaranteed by these assumptions.
- ii. Given the numerator is positive, $|D| + |E| + |F| + |G| - |H|$ should be as small as possible

As it is shown on the Table-3, there are 10 expressions on either numerator or denominator. Analytically, this research is not aimed at calculation or estimation of each expression on the equation. However, we can extrapolate some of the expressions and their contributions to the equation. In this study, we will focus only on four expressions: 1, 2, 3 and 4 shown on the Table-3.

Table 3: Mathematical Expressions in the Model

Expression &	$\frac{\partial^2 U}{\partial C^2}$	$\frac{\partial^2 S}{\partial M^2}$	$\frac{\partial^2 S}{\partial M \partial X}$	$\frac{\partial S}{\partial X}$	$\frac{\partial^2 U}{\partial L^2}$	$\frac{\partial^2 U}{\partial C \partial L}$	$\frac{\partial U}{\partial L}$	$\frac{\partial S}{\partial M}$	$\frac{\partial L}{\partial S}$	τ^{-j}
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Numerator			√	√	√	√	√	√	√	√
Denominator	√	√			√	√		√	√	√

In reality, although the other expressions are also equally important, each of those other expressions enters into the system both positively and negatively so that the overall effect may not be calculated through analytical operation. Since each excluded expression's overall effect requires an empirical research, we would not attempt to pursue such estimation. Given the regulation cause decline in X by ΔX , (*ceteris paribus*) the decline in M will be larger if:

- i. The larger the absolute value of $\partial^2 U / \partial C^2$, the larger the $\partial M^* / \partial X$. In other words, the marginal utility curve has negative slope and the curve is very steep.
- ii. The larger the absolute value of $\partial^2 S / \partial M^2$, the larger the However, different from marginal utility curve, after some level, higher value of $\partial^2 S / \partial M^2$ would in fact change the sign of denominator and therefore

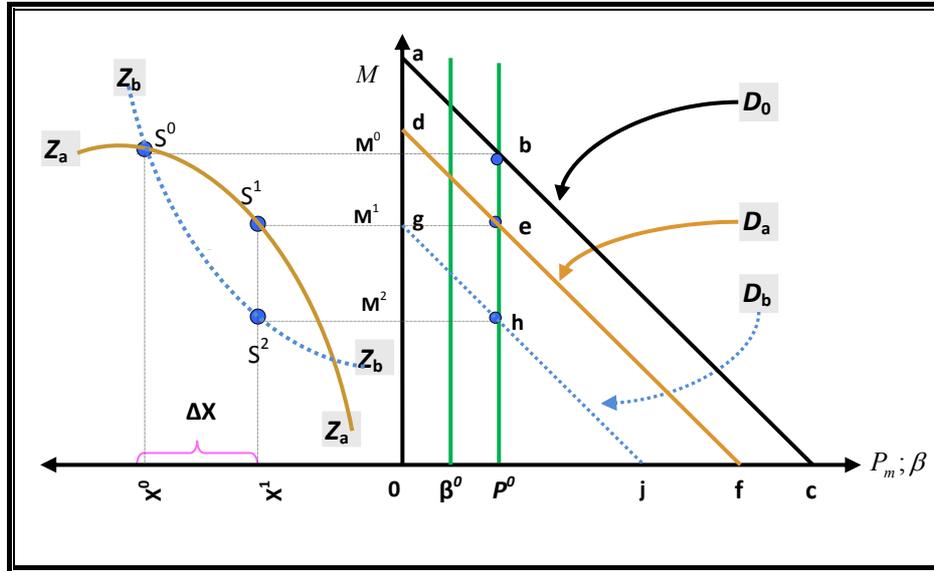
even can cause the slope of the $\partial M^* / \partial X$ curve to be negative. Therefore, due to this term, the response curve is expected to be either concave or convex to the origin.

- iii. The larger the absolute value of $\partial S / \partial X$, the larger the $\partial M^* / \partial X$. Notice that the term is located both on A and B on the numerator. Although A and B works in opposite direction, the intuition leads to this conclusion: If the convenience makes shopping easier and more enjoyable, consumers will feel shopping as a good leisure activity rather than necessity.
- iv. The larger the absolute value of $\partial^2 S / \partial M \partial X$, the larger the $\partial M^* / \partial X$. The term $\partial^2 S / \partial M \partial X$ is located in the C on the numerator and the sign of the expression is negative. The result is also consistent with economic intuition: the more convenience a shopping center or large supermarkets offer, the more time consumers will spend and probably the more items they would purchase.

In order to explain more clearly, we employ a figure below. Figure-1 elucidates the relation between M and X in two different dimensions. On the right quadrant, the vertical axis shows the amount of goods sold by LRF. The horizontal axis displays; 1) the price (P_m) and 2) the average cost (β) of the composite good (i.e. M). Assume that prior to regulation, the demand curve for LRF is D_0 (or a-b-c line), the effective price is P_m^0 and the average cost of acquiring this composite good by LRF is constant and equal to β^0 . At that price, the amount of composite good sold by LRF is equal to M^0 . Once the regulation takes place, the result of equation 8 indicates that the demand curve of LRF will shift in. However, the magnitude of the shift depend how strong this restrictions in deterring the shopping behavior of consumers or depends on the elasticity of M with respect to X.

The relation between M and X is depicted on the left quadrant. Intuitively, if the regulation restricts X by say ΔX amount, the effects of this regulation on consumers and LRF will depend on the slope of the Z curve or the value of $(\partial M^* / \partial X)$. The lower the value of $(\partial M^* / \partial X)$, the lower the reduction in M. On the figure, given ΔX amount of regulation, the reduction in M is relatively little if response curve (Z-curve) looks like Z_a . When the response curve is Z_a , the demand curve will shift from D_0 to D_a .

Figure-1: Demand and Revenue Relations



On the other hand, for the consumers if X plays significant role in differentiation between LRF and SRF, then the reduction in X will yield significant decline in M. In other words, given amount of reduction in X will yield large shift in demand curve and the demand curve will shift from D_0 to D_b . More clearly, if consumers put significant weights over non-price advantages of LRF, the reduction in M will be large and the response curve will look like Z_b . When the response curve is Z_b , the demand curve will shift from D_0 to D_b . Roughly speaking, the effects of regulation over LRF depends on the slope of M with respect to X.

The above analysis suggests that marginal benefit for lobbying depends on the behavior of consumers. Ex-ante, if response curve is estimated to be as Z_b , lobbying group for LRF will exert higher pressure on politicians. On the other hand, when the response curve looks like Z_a , the LRF's lobby is expected to exert mild pressure. Intuitively, when the price advantage of LRF is more important than non-price advantages of LRF for the consumers, it is more likely to have Z_a than Z_b . However, when the relative price advantage is mild and the consumers prefer to shop from LRF mainly for non-price advantage, the response curve would more likely to be Z_b than Z_a . The result can be combined with Becker's model by hypothesizing: *The larger the expected loss/gain of a group from the regulation, the larger the lobbying effort.*

The second dimension of the issue is related to electoral concerns of legislators. In Turkey, the lobbying group for LRF (and individual large retail companies) has strong ties with top 500 corporations. This implies that the regulation would not be seen as an isolated economic agenda pursued by LRF only. The legislators would be under the pressure of both LRF and those large conglomerates with their sheer size

in Turkish economy. In other words, the pressure power of LRF would be more than LRF's own economic power alone. The other dimension of this political problem is related to median voter theorem. In Turkish politics, according to Akalın (2002:78-85), people who owns small businesses (including tradesman, artisans and farmers) are located in the middle of voter distribution. In Turkish politics, based on Mardin's (1973) classification, the farmers, tradesmen and artisans constitute the "periphery" and located around the center of the distribution for large number of issues. Although these actors seem to be heterogeneous, some political parties classified as moderate (either right or left-wing) were able to form policies perceived as "necessary" by these actors. In other words, the political parties have been surrounded by these peripheral actors in such a way that in some issues, the electoral outcome has depended on the preferences of these actors (Çarkoğlu and Hinich, 2006). Since the number of small traditional stores (SRF) in Turkey is very large, and their influence (if they are well organized) is expected to be felt more significant around general or local election. Therefore, the same amount of resources utilized by small traditional stores (say Rs) can generate more influence when lobbying is concentrated around the election time. In other words, it would be better for small traditional stores to push harder for the regulation when election is coming.

As oppose to Becker's model, this study shows that amount of resources utilized in influencing game by lobbying group is an endogenous variable. Moreover, the elasticity of influence with respect to amount of resources utilized in lobbying is greater when political actors need electoral support.

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